

**CLAIMS**

What is claimed is:

Sub A<sub>2</sub> 1. A part attachable to a substrate via a welding process, comprised of aluminum or an aluminum alloy, wherein a surface of the part to be welded to the substrate is provided with a titanium containing material capable of lowering the contact resistance between the part and the substrate during a welding process.

2. The part according to Claim 1, wherein the titanium containing material is formed by contacting the part with an acidic solution containing titanium ions.

3. The part according to Claim 3, wherein the acidic solution is a passivating solution.

4. The part according to Claim 3, wherein the acidic solution is chromium-free.

5. The part according to Claim 1, wherein said acidic solution includes ALODINE 2040.

6. The part according to Claim 1, wherein the part is a weld stud having a welding face.

7. The part according to Claim 6, wherein at least a portion of the 5 welding face is provided with a titanium aluminum oxide layer.

8. The part according to Claim 7 wherein said part is applied to a substrate having an average thickness of as little as 0.8 mm.

10. ~~Sub a, >~~ 9. A method of producing a weldable aluminum part having titanium dispersed along a surface thereof, said method comprising the steps of:

providing an acidic solution containing titanium ions; and

contacting the weldable aluminum part with the acidic solution for a sufficient period of time to permit the application of titanium along a surface 15 of the part;

whereby the contact resistance of the part is lowered during a subsequent welding process.

10. The method according to Claim 9, wherein the acidic solution is 20 a passivating solution.

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10

11. The method according to Claim 9, wherein the acidic solution is chromium-free.

12. The method according to Claim 9, wherein said acidic solution includes ALODINE 2040.

13. The method according to Claim 9, wherein the part is a weld stud having a welding face.

14. The method according to Claim 9, wherein at least a portion of the welding face is provided with a titanium aluminum oxide layer.

15. The method according to Claim 15 wherein said part is applied to a substrate having an average thickness of as little as 0.8 mm.

Add A-4